ALASKA DEPARTMENT OF FISH AND GAME

JUNEAU, ALASKA

STATE OF ALASKA
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REPORT ON 1968

BROWN BEAR STUDIES

by

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Annual Project Segment Report
Federal Aid in Wildlife Restoration
Project W-15-R-3 and W-17-1, Work Plan M

(Printed August, 1969)

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PERIOD COVERED: January 1, 1968 through December 31, 1968

ABSTRACT

The Alaska brown-grizzly bear legal sport harvest during calendar year 1968 was 642 (spring, 283; fall, 359). Sixty percent of the harvest was from Game Management Units 4, 6, 8, and 9. Statewide, the harvest was 16 percent less than in 1967 and 25 percent less than in 1966, mainly because of more restrictive regulations and reduced hunting pressure in some units. Age determinations based on cementum layering were made on hunter-killed bears.

Bear observations were made at McNeil River, and ten animals including four marked in previous years were immobilized and marked. Seven bears marked in previous years were recognized without immobilizing.

Ten hours of flying to develop a technique to immobilize bears from a helicopter resulted in nine bears being tagged in the Black Lake area on the Alaska Peninsula.

Twelve dens were examined in the spring on the Alaska Peninsula.

The Department killed five bears judged to be predators or potential predators of cattle on Kodiak.

RECOMMENDATIONS FOR MANAGEMENT

Continue to obtain and assess harvest information. Instruct all sealing officers on how to collect teeth so as to realize full benefit from the new regulation requiring that hunters furnish a tooth from each bear harvested.

Recognize potential dangers to bear habitat and numbers from proposed land uses, and work with land-controlling agencies to keep damages to a minimum. Activities which should receive special consideration are logging in Southeastern Alaska and on Afognak Island and oil exploration and development in the Arctic and on the Alaska Peninsula.

Upgrade the esthetics or quality of hunting for brown and grizzly bears, which are large game animals with limited distribution and abundance taken almost exclusively for trophies. Prime consideration should be given to writing and enforcing regulations pertaining to aircraft used in connection with hunting.

As hunting pressures increase and regulations become more restrictive, restrict non-residents as much as possible rather than residents.

WORK PLAN SEGMENT REPORT

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PERIOD COVERED: January 1, 1968 through December 31, 1968

OBJECTIVES

To determine magnitude, distribution, chronology, and sex, size, and age composition of the hunter harvest.

To obtain information on movement, female breeding biology, time of family breakup, and amount of cub mortality.

To determine feasibility of immobilizing bears from a helicopter.

To obtain information on dens and denning mortality.

To learn characteristics of bear predation on cattle on Kodiak Island.

To obtain data on bear distribution, relative abundance, and population composition on the Alaska Peninsula.

To study effects of logging on southeastern Alaska bears so as to be able to recommend logging practices which would be least detrimental to bears.

METHODS

The bear sealing program provided hunter harvest information. By regulation, brown and grizzly bear hides and skulls must be presented to a member of the Department for examination and sealing within 30 days after the date of kill. When a bear was sealed, the date and location of kill, sex, and skull and hide size were recorded. Whenever possible a tooth, usually a first lower premolar, was obtained for age determination. Methods used to section and examine teeth were as described by Lentfer et. al. (1968).

Bears were observed and marked at McNeil River on lower Cook Inlet from July 9 to July 26. Bears were immobilized for marking when they came to the river to catch salmon by injecting phencyclidine hydrochloride (Sernylan, Parke Davis and Co., Detroit, Michigan) with Palmer Cap-chur equipment. Weights were estimated and an attempt made to give dosages of 0.75 milligrams/pound body weight. As soon as possible after a bear was immobilized, 2 to 3 milliliters of propiopromazine hydrochloride (Tranvet, Diamond Laboratories, Inc., Des Moines, Iowa), in a concentration of 25 milligrams/milliliter, was injected to prevent or reduce severity of convulsions which sometimes occur after Sernylan is administered. Personnel were divided into two two-man crews, one of which worked on each side of the river. Crews used walkie-talkies and hand signals to coordinate efforts. On each crew one man handled Cap-chur equipment and drugs and the other man carried a rifle as a safety measure. Until July 21, most tagging effort was between 10 a.m. and 5 p.m. After July 21, efforts were made increasingly later each day to attempt to see more bears. An attempt was also made to capture bears with steel traps along Mikfik Creek, a small drainage adjacent to McNeil River. Bears were marked with a numbered monel metal tag with a colored safety flagging marker in one ear and a numbered nylon rototag in the other ear. Mature bears were marked additionally with a collar of nylon parachute webbing to which nylon flagging material had been sewed for color coding. Collars were fastened by overlapping the ends and hog-ringing. A number corresponding to the ear tag number was tattooed on the upper lip and groin. A lower premolar was pulled for cementum age determination. About 25 milligrams/pound body weight of Alizarin red S dye was injected intraperitoneally to check the cementum age determination technique for bears from which a tooth may be obtained in the future. Estimated weight and age and the following measurements were recorded: total length, hind foot length, height at shoulder, girth, neck circumference, and front and rear pad lengths and widths. Breeding biology information recorded included size, color, and lactating condition of teats and condition of vulva for females, and baculum size and location of testes for males. Observations were made of bears tagged in previous years and identified in 1968, untagged bears, and activities of bears in relation to stage of salmon run. Participating personnel were Greg Bos and Ben Ballenger for the entire period, Lee Miller and Sterling Eide from July 9 to July 21, and Royce Perkins and Walt Cunningham from July 21 to July 26.

A pilot study to determine the feasibility of immobilizing bears from a helicopter was conducted in the Black Lake area on the Alaska Peninsula between August 8 and 13 when bears were on the streams feeding on salmon. A Hiller 12-E-4 helicopter on skids was used and carried a pilot and two biologists. Activity was confined mainly to drainages where there were large areas without brush. Bears were located by searching with the helicopter. When a bear was sighted, its weight was estimated and an attempt made to inject 0.75 milligrams/pound body weight of Sernylan in a rump muscle using Cap-chur equipment from

the helicopter. As Sernylan took effect, the helicopter was flown so as to attempt to keep the bear away from alder patches. Two to three milliliters of Tranvet or promazine hydrochloride (Sparine, Wyeth Laboratories, Inc., Philadelphia, Pennsylvania) in a concentration of 50 milligrams/milliliter was injected by hand syringe as soon as possible after a bear was down. Bears were marked and measurements taken as has been described for animals handled at McNeil River. Jack Lentfer and Lee Miller did the work.

Brown bear denning work was conducted from May 1 to May 11 on the Alaska Peninsula between Aniakchak Crater and Bear Lake. Dens located a year previously were checked, and other dens were located by searching from a Supercub, PA-18, with big wheels. Locations of dens were also obtained from guides, some of whom had been operating in the area since April 15. Several of these guides had been asked previously to record locations of dens seen. Dens were examined from the air and by landing as close as possible and walking to the site. Lee Miller made all observations. Lyman Nichols did most of the flying.

On Kodiak cattle leases, bears thought to be potential predators on cattle were killed. Cattle reported to be killed by bears were examined. Several streams in Saltery Cove and Kalsin Bay were walked to estimate the number of bears on the streams. Most work was done by Ben Ballenger.

On the Alaska Peninsula it was planned to fly replicate surveys on the six brown bear study areas between Becharof Lake and Cold Bay to obtain composition and trend data when bears were concentrated on salmon streams and to assess variables associated with aerial surveys. Study areas are described by Lentfer et. al. (1967). Fog, high winds, and overcommitments by State contract pilots limited flying to those areas south of the Meshik drainage. Flights were made with Supercubs, PA-18, on wheels by Jack Lentfer, Lee Miller, and Ben Ballenger of the Alaska Department and Palmer Sekora of the U.S. Fish and Wildlife Service Cold Bay Refuge.

In Southeastern Alaska, four established survey routes were flown in late May as part of the bear-logging relationship study. The southeastern Admiralty Island route includes the shoreline from the northeast head of Gambier Bay to the southwest shore of Chapin Bay. The southwestern Admiralty Island route includes the shoreline from Point Wilson to Cabin Point in Hood Bay. Both these routes have been flown by the Forest Service each year from 1960 through 1964 and in 1966. The other Admiralty Island route extends along the shoreline from the east side of Seymour Canal to Staunch Point on the west side of Seymour Canal. The fourth route, which is on Chichagof Island, extends from the head of Tenakee Inlet along its south shore to Trap Point. The latter two routes were flown for the first time in 1967. All routes were flown on two different evenings, usually between 8 and 10 p.m. One reconnaissance flight was made over Rodman Bay on Baranof Island. Flights were made with two observers in a chartered Cessna 185. In 1968, surveys were flown for the first time on salmon streams in late summer when bears were concentrated on streams to feed on salmon. Streams chosen for surveying were located on Admiralty, Baranof, and Chichagof Islands, and represented different successional stages related to logging. These included drainages or bays where logging had occurred in the past (second growth of various ages), where logging is now taking place, where logging is planned for the future, and where logging has not and probably will not occur. Survey streams also vary in the amount of hunting pressure received.

The size and timing of salmon escapement varies from stream to stream and on individual streams from year to year. Information from the Commercial Fish Division indicated timing of salmon runs, and bear surveys were timed to coincide with peaks of runs. Flights were made in a Supercub, PA-18, on wheels. Streams were approached at high altitude and then surveyed downstream in low slow flight. The upper limit of survey was where terrain limited aircraft maneuverability or blocked salmon movement. In all cases the uppermost limit of survey was well above the uppermost occurrence of salmon, usually 5 or 6 miles upstream from the stream mouth. Flights were made during the last 4 hours of daylight. In addition to counting bears, notes were made on fish abundance, human disturbance, degree of logging, presence or absence of fringe cover, and quality of survey coverage. Various logged areas were examined from the ground to obtain an indication of bear use from tracks, trails, and scats. Patterns of revegetation in logged areas were also noted. Greg Bos and Jerry Deppa did all Southeastern Alaska bear-logging work.

FINDINGS

Harvest

The legal sport harvest of brown-grizzly bears during calendar year 1968 as indicated by hides and skulls presented for sealing was 642 (spring season, 283; fall season, 359). The 1968 harvest was 16 percent less than in 1967 and 25 percent less than the peak harvest of 1966. Main reasons for reduced harvests were more restrictive regulations and reduced hunting pressure. Non-residents took 58 percent of the 1968 harvest. The number of bears taken from the four game management units which furnished nearly 60 percent of the kill are: Unit 4, 50; Unit 6, 63; Unit 8, 104; and Unit 9, 158. Tables 1, 2, and 3 list 1968 harvest data by game management unit. Harvest data for 1968 with comparative figures since 1961 are presented in Tables 4 through 9. Four bears for which kill data are incomplete are not included in these figures. The known illegal and/or non-sport kill was 15, of which 4 were killed in Unit 20, 3 in Unit 13, 2 in Unit 23, and 1 each in Units 7, 8, 9, 14, 17, and 24.

In Unit 4, Admiralty, Baranof, and Chichagof Islands in Southeastern Alaska, the 1968 harvest was somewhat lower in both spring and fall seasons than in 1966 and 1967. This appeared to be mainly because of reduced hunting effort. Several guides and hunters reported that bears did not appear to be scarce, and about the same number of bears were counted in aerial surveys made by the Department as had been counted in previous years.

In Unit 5, the Yakutat area, the harvest was about the same as that of previous years. Part of this unit can be hunted by plane, and it may receive increased hunting pressure in the future as more restrictions are put into effect on the Alaska Peninsula and in other areas.

In Unit 6, the Cordova area, the 1967 and 1968 harvest increased in both spring and fall seasons over the 1966 harvest. Airplanes can be used to hunt in Unit 6, and it was mainly guided non-resident hunters who caused the increase in harvest. Some new guides started operating in Unit 6, and some established guides operated there for the first time as regulations became more restrictive in other Units.

TABLE 1

TOTAL - 1968

BROWN - GRIZZLY BEAR HARVEST

UNIT	RESIDENT			NON-RESIDENT			TOTAL						
	M	F	Unk	M	F	Unk	M	F	Unk	Total	% of Total	% Male	Non-Res.
1	10	4	-	1	3	-	11	7	-	18	2.8	61	22
4	29	3	1	9	8	-	38	11	1	50	7.8	78	34
5	8	3	-	5	2	-	13	5	-	18	2.8	72	39
6	19	8	3	20	11	2	39	19	5	63	9.8	67	52
7	-	-	-	-	-	-	-	-	-	-	-	-	-
8	24	17	1	37	25	-	61	42	1	104	16.2	59	60
9	15	8	1	96	34	4	111	42	5	158	24.6	72	85
10	-	-	-	2	2	-	2	2	-	4	.6	50	100
11	4	4	-	4	3	-	8	7	-	15	2.3	53	47
12	2	5	-	5	3	1	7	8	1	16	2.5	47	56
13	10	9	-	8	10	1	18	19	1	38	5.9	49	50
14	2	3	-	1	4	1	3	7	1	11	1.7	30	45
15	7	3	-	-	1	-	7	4	-	11	1.7	64	9
16	5	2	-	11	5	-	16	7	-	23	3.6	70	70
17	4	-	-	3	3	-	7	3	-	10	1.6	70	60
18	-	-	-	-	-	-	-	-	-	-	-	-	-
19	3	2	-	3	4	3	6	6	3	15	2.3	50	67
20	12	6	-	5	-	-	17	6	-	23	3.6	74	22
21	-	1	-	-	-	-	-	1	-	1	.2	0	0
22	3	3	-	-	-	-	3	3	-	6	.9	50	0
23	9	3	-	15	2	-	24	5	-	29	4.5	83	59
24	2	-	-	2	1	-	4	1	-	5	.8	80	60
25	4	2	-	4	-	-	8	2	-	10	1.6	80	40
26	6	-	-	7	1	-	13	1	-	14	2.2	93	57
TOTAL	178	86	6	238	122	12	416	208	18	642			
%	67	33	-	66	34	-	67	33	-		100	67	58

TABLE 2

SPRING - 1968

BROWN - GRIZZLY BEAR HARVEST

UNIT	RESIDENT			NON- RESIDENT			T O T A L							
	M	F	Unk	M	F	Unk	M	F	Unk	Total	% of Total	% Male	Non-Res.	
1	5	1	-	-	-	-	5	1	-	6	2	83	-	
4	22	3	1	6	4	-	28	7	1	36	13	80	28	
5	2	-	-	3	1	-	5	1	-	6	2	83	67	
6	8	5	2	13	7	2	21	12	4	37	13	64	59	
7	-	-	-	-	-	-	-	-	-	-	-	-	-	
8	23	16	1	22	15	-	45	31	1	77	27	59	48	
9	5	4	1	50	8	-	55	12	1	68	24	82	85	
10	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	3	-	-	-	-	-	3	-	-	3	1	100	-	
12	-	3	-	-	1	-	-	4	-	4	1	-	25	
13	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	2	2	-	4	2	-	6	4	-	10	4	60	60	
17	2	-	-	-	1	-	2	1	-	3	1	67	33	
18	-	-	-	-	-	-	-	-	-	-	-	-	-	
19	1	1	-	-	-	-	1	1	-	2	1	50	-	
20	1	2	-	2	-	-	3	2	-	5	2	60	40	
21	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	1	2	-	-	-	-	1	2	-	3	1	33	-	
23	7	-	-	11	-	-	18	-	-	18	6	100	61	
24	-	-	-	-	-	-	-	-	-	-	-	-	-	
25	1	-	-	2	-	-	3	-	-	3	1	100	67	
26	2	-	-	-	-	-	2	-	-	2	1	100	-	
TOTAL	85	39	5	113	39	2	198	78	7	283				
%	69	31		74	26		72	28			100	72	54	

TABLE 3

FALL - 1968

BROWN - GRIZZLY BEAR HARVEST

UNIT	RESIDENT			NON-RESIDENT			T O T A L						
	M	F	Unk	M	F	Unk	M	F	Unk	Total	% of Total	% Male	Non-Res.
1	5	3	-	1	3	-	6	6	-	12	3.3	50	33
4	7	-	-	3	4	-	10	4	-	14	3.9	71	50
5	6	3	-	2	1	-	8	4	-	12	3.3	67	25
6	11	3	1	7	4	-	18	7	1	26	7.2	72	42
7	-	-	-	-	-	-	-	-	-	-	-	-	-
8	1	1	-	15	10	-	16	11	-	27	7.5	59	93
9	10	4	-	46	26	4	56	30	4	90	25.1	65	84
10	-	-	-	2	2	-	2	2	-	4	1.1	50	100
11	1	4	-	4	3	-	5	7	-	12	3.3	42	58
12	2	2	-	5	2	1	7	4	1	12	3.3	64	67
13	10	9	-	8	10	1	18	19	1	38	10.6	49	50
14	2	3	-	1	4	1	3	7	1	11	3.1	30	55
15	7	3	-	-	1	-	7	4	-	11	3.1	64	91
16	3	-	-	7	3	-	10	3	-	13	3.6	77	77
17	2	-	-	3	2	-	5	2	-	7	1.9	71	71
18	-	-	-	-	-	-	-	-	-	-	-	-	-
19	2	1	-	3	4	3	5	5	3	13	3.6	50	77
20	11	4	-	3	-	-	14	4	-	18	5.0	78	17
21	-	1	-	-	-	-	-	1	-	1	.3	0	0
22	2	1	-	-	-	-	2	1	-	3	.8	67	0
23	2	3	-	4	2	-	6	5	-	11	3.1	55	55
24	2	-	-	2	1	-	4	1	-	5	1.4	80	60
25	3	2	-	2	-	-	5	2	-	7	1.9	71	29
26	4	-	-	7	1	-	11	1	-	12	3.3	92	67
TOTAL	93	47	1	125	83	10	218	130	11	359			
%	66	34		61	39		63	37			100	63	61

Table 4. Alaska Brown-Grizzly Bear Sport Harvest by Game Management Unit and Season

	SPRING								FALL								SPRING & FALL							
UNIT	61	62	63	64	65	66	67	68	61	62	63	64	65	66	67	68	61	62	63	64	65	66	67	68
1	6	7	4	8	7	6	18	6	7	5	5	12	1	7	9	12	13	12	9	20	8	13	27	18
2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
4	28	32	18	40	41	49	41	36	11	12	9	15	23	26	21	14	39	44	27	55	64	75	62	50
5	4	1	4	2	6	4	4	6	5	6	2	9	9	18	11	12	9	7	6	11	15	22	15	18
6	6	9	11	19	23	24	32	37	7	15	21	13	11	14	24	26	13	24	32	32	34	38	56	63
7			No Open Season						1	1	1	–	–	–	1	–	1	1	1	–	–	–	1	–
8	82	96	80	90	119	137	141	77	36	35	32	28	67	62	43	27	118	131	112	118	186	199	184	104
9	69	95	75	64	98	101	111	68	51	60	89	91	110	120	100	90	120	155	164	155	208	230	211	158
10	1	3	–	10	6	5	3	–	–	–	–	5	4	1	5	4	1	3	–	15	10	6	8	4
11	–	–	–	–	2	–	3	3	5	14	9	22	16	12	17	12	5	14	9	22	18	12	20	15
12	3	3	5	1	2	3	–	4	11	16	18	14	17	9	16	12	14	19	23	15	19	12	16	16
13			No Open Season						42	34	42	35	44	63	29	38	42	34	42	35	44	63	29	38
14			No Open Season						16	9	13	12	15	5	12	11	16	9	13	12	15	5	12	11
15			No Open Season						4	5	4	2	3	4	4	11	4	5	4	2	3	4	4	11
16	8	3	3	4	6	5	4	10	20	15	24	16	31	22	24	13	28	18	27	20	37	27	28	23
17	–	–	–	–	–	2	1	3	2	3	3	5	6	7	10	7	2	3	3	5	6	9	11	10
18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
19	–	–	–	–	1	1	1	2	13	11	11	19	17	17	16	13	13	11	11	19	18	18	17	15
20	6	4	10	5	17	12	4	5	11	22	34	41	15	45	11	18	17	26	44	46	32	57	15	23
21	–	1	–	–	–	–	1	–	4	6	3	–	–	1	–	1	4	7	3	–	–	1	1	1
22	–	1	–	–	1	2	2	3	1	–	–	–	–	–	1	3	1	1	–	–	1	2	3	6
23	–	2	5	10	20	8	6	18	6	4	6	4	7	4	6	11	6	6	11	14	27	12	12	29
24	–	3	3	2	3	1	5	–	3	3	6	7	8	14	8	5	3	6	9	9	11	15	13	5
25	1	–	1	2	5	5	7	3	3	4	6	9	6	20	10	7	4	4	7	11	11	25	17	10
26	1	–	4	11	2	1	1	2	–	2	6	5	3	8	3	12	1	2	10	16	5	9	4	14
TOTAL	215	260	223	268	359	366	385	283	259	282	344	364	413	490	381	359	474	542	567	632	772	854	766	642

Table 5. Alaska Game Management Unit 4 Brown-Grizzly Bear Harvest by Year, Season, and Residency of Hunter.

Total Kill

YEAR	SPRING					FALL					TOTAL				
	RES.		N-R.		TOTAL	RES.		N-R.		TOTAL	RES.		N-R.		TOTAL
	No.	%	No.	%	No.	No.	%	No.	%	No.	No.	%	No.	%	No.
61	10	36	18	64	28	6	55	5	45	11	16	41	23	59	39
62	13	41	19	59	32	2	17	10	83	12	15	34	29	66	44
63	7	39	11	61	18	5	56	4	44	9	12	44	15	56	27
64	23	57	17	43	40	8	53	7	47	15	31	56	24	44	55
65	22	54	19	46	41	9	39	14	61	23	31	48	33	52	64
66	20	41	29	59	49	5	19	21	81	26	25	33	50	67	75
67	24	59	17	41	41	8	38	13	62	21	32	52	30	48	62
68	26	72	10	28	36	7	50	7	50	14	33	66	17	34	50

Average Male Hide Size (length plus width in feet)

YEAR	SPRING					FALL					TOTAL				
	RES.		N-R.		AVER	RES.		N-R.		AVER	RES.		N-R.		AVER
	SIZE	NO.	SIZE	NO.	SIZE	SIZE	NO.	SIZE	NO.	SIZE	SIZE	NO.	SIZE	NO.	SIZE
61	14.6	10	16.2	13	15.5	12.4	3	14.9	2	13.4	14.1	13	16.0	15	15.1
62	13.9	9	15.5	12	14.8	0	0	13.9	6	13.9	13.9	9	14.9	18	14.6
63	13.9	6	15.0	9	14.5	13.0	2	14.7	2	13.8	13.7	8	14.9	11	14.4
64	14.2	16	15.3	9	14.6	13.2	6	13.0	2	13.2	13.9	22	14.9	11	14.2
65	13.4	14	13.8	9	13.5	15.4	5	13.2	10	13.9	13.9	19	13.5	19	13.7
66	13.0	11	13.5	23	13.4	12.6	4	12.5	9	12.6	12.9	15	13.3	32	13.1
67	13.0	15	13.1	13	13.0	13.5	6	13.4	6	13.4	13.1	21	13.2	19	13.2
68	12.5	18	13.4	4	12.7	13.6	7	12.7	3	13.4	12.8	25	13.1	7	12.9

Number and Percent of Males in Total Harvest

YEAR	SPRING						FALL						TOTAL					
	RES.		N-R.		TOTAL		RES.		N-R.		TOTAL		RES.		N-R.		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
61	9	90	16	89	25	89	4	80	2	33	6	55	13	87	18	75	31	80
62	9	69	14	74	23	72	0	0	6	60	6	55	9	64	20	69	29	67
63	6	86	10	91	16	69	2	40	2	50	4	44	8	67	12	80	20	74
64	17	77	12	71	29	74	6	75	2	29	8	53	23	77	14	58	37	69
65	17	77	11	58	28	68	5	56	10	77	15	68	22	71	21	51	43	68
66	12	71	22	79	34	76	4	80	9	47	13	52	16	73	31	65	47	67
67	17	71	13	76	30	73	6	75	7	54	13	62	23	72	20	67	43	69
68	22	88	6	60	28	80	7	100	3	43	10	71	29	91	9	53	38	78

Table 6. Alaska Game Management Unit 8 Brown-Grizzly Bear Harvest by Year, Season, and Residency of Hunter.

Total Kill

YEAR	SPRING					FALL					TOTAL				
	RES.		N-R.		TOTAL	RES.		N-R.		TOTAL	RES.		N-R.		TOTAL
	NO.	%	NO.	%	NO.	NO.	%	NO.	%	NO.	NO.	%	NO.	%	NO.
61	41	50	41	50	82	5	14	31	86	36	46	39	72	61	118
62	41	43	55	57	96	6	17	29	83	35	47	36	84	64	131
63	43	54	37	46	80	14	31	18	56	32	57	51	55	49	112
64	48	53	42	47	90	8	29	20	71	28	56	47	62	53	118
65	62	52	57	48	119	34	51	33	49	67	96	52	90	48	186
66	80	58	57	42	137	23	37	39	63	62	103	52	96	48	199
67	81	57	60	43	141	12	28	31	72	43	93	51	91	49	184
68	40	52	37	48	77	2	7	25	93	27	42	40	62	60	104

Average Male Hide Size (Length plus width in feet)

YEAR	SPRING					FALL					TOTAL				
	RES.		N-R.		AVER	RES.		N-R.		AVER	RES.		N-R.		AVER
	SIZE	NO.	SIZE	NO.	SIZE	SIZE	NO.	SIZE	NO.	SIZE	SIZE	NO.	SIZE	NO.	SIZE
61	15.5	30	18.1	26	16.7	15.9	3	17.7	16	17.4	15.5	33	17.9	42	16.9
62	15.5	26	17.4	46	16.7	15.4	4	15.9	14	15.8	15.5	30	17.0	60	16.5
63	14.8	28	17.6	25	16.1	16.4	11	16.6	10	16.5	15.2	39	17.3	35	16.2
64	14.8	27	14.9	25	14.8	15.1	7	16.4	15	16.0	14.9	34	15.5	40	15.2
65	14.9	36	16.3	33	15.5	16.1	21	16.0	20	16.1	15.3	57	16.2	53	15.7
66	14.9	32	16.3	34	15.6	15.1	15	16.4	22	15.9	15.0	47	16.3	56	15.7
67	14.4	38	15.9	40	15.2	14.5	9	16.0	20	15.5	14.4	47	15.9	60	15.3
68	14.5	23	16.4	22	15.4	16.8	1	16.1	15	16.2	14.6	24	16.3	37	15.6

Number and Percent of Males in Total Harvest

YEAR	SPRING						FALL						TOTAL					
	RES.		N-R.		TOTAL		RES.		N-R.		TOTAL		RES.		N-R.		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
61	31	76	28	68	59	72	3	75	16	50	19	53	34	76	44	60	78	66
62	26	63	46	84	72	75	4	67	15	52	19	54	30	64	61	73	91	70
63	29	67	26	70	55	69	13	93	9	53	22	71	42	74	35	65	77	69
64	26	57	24	60	50	58	7	88	15	75	22	79	33	61	39	65	72	63
65	36	59	34	60	70	59	21	62	20	61	41	61	57	60	54	60	111	60
66	33	43	34	60	67	50	17	74	22	58	39	64	50	50	56	59	106	54
67	38	47	40	67	78	55	9	75	20	65	29	67	47	51	60	66	107	58
68	23	59	22	59	45	59	1	50	15	60	16	59	24	59	37	60	61	59

Table 7. Alaska Game Management Unit 9 Brown-Grizzly Bear Harvest by Year, Season, and Residency of Hunter.

Total Kill

YEAR	SPRING					FALL					TOTAL				
	RES.		N-R.		TOTAL	RES.		N-R.		TOTAL	RES.		N-R.		TOTAL
	NO.	%	NO.	%	NO.	NO.	%	NO.	%	NO.	NO.	%	NO.	%	NO.
61	27	39	42	61	69	22	43	29	57	51	49	41	71	59	120
62	43	45	52	55	95	15	25	45	75	60	58	37	97	63	155
63	29	39	46	61	75	21	24	68	76	89	50	30	114	70	164
64	19	30	45	70	64	28	31	63	69	91	47	30	108	70	155
65	36	37	62	63	98	35	32	75	68	110	71	34	137	66	208
66	25	25	76	75	101	32	25	97	75	129	57	25	173	75	230
67	33	30	78	70	111	15	15	85	85	100	48	23	163	77	211
68	10	15	58	85	68	14	16	76	84	90	24	15	134	85	158

Average Male Hide Size (length plus width in feet)

YEAR	SPRING					FALL					TOTAL				
	RES.		N-R.		AVER	RES.		N-R.		AVER	RES.		N-R.		AVER
	SIZE	NO.	SIZE	NO.	SIZE	SIZE	NO.	SIZE	NO.	SIZE	SIZE	NO.	SIZE	NO.	SIZE
61	15.6	20	17.0	32	16.7	15.1	9	15.9	18	15.6	15.6	29	16.9	50	16.4
62	16.2	32	16.6	42	16.4	15.7	5	16.7	24	16.5	16.1	37	16.6	66	16.4
63	16.4	19	17.3	39	17.0	14.6	6	14.9	35	14.9	15.6	25	16.2	74	16.1
64	15.1	15	16.6	37	16.2	15.8	12	16.2	36	16.1	15.4	27	16.4	73	16.1
65	14.9	24	17.4	54	16.6	13.7	17	14.8	39	14.5	14.4	41	16.3	93	15.7
66	15.0	19	16.7	69	16.4	14.3	20	15.1	49	14.8	14.7	39	16.0	118	15.7
67	15.8	21	16.3	67	16.2	15.8	6	15.2	47	15.2	15.8	27	15.9	114	15.8
68	14.5	5	16.3	50	16.1	14.7	10	15.0	45	14.9	14.6	15	15.7	95	15.5

Number and Precent of Males in Total Harvest

YEAR	SPRING						FALL						TOTAL					
	RES.		N-R.		TOTAL		RES.		N-R.		TOTAL		RES.		N-R.		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
61	20	80	35	83	55	82	11	55	19	66	30	61	31	69	54	76	85	73
62	33	77	44	85	77	81	5	33	27	60	32	53	38	66	71	73	109	70
63	19	73	39	87	58	83	6	32	36	55	42	49	25	56	75	68	100	65
64	15	83	36	84	51	84	15	54	37	64	52	60	30	65	73	72	108	70
65	25	69	53	85	78	80	18	51	40	56	58	55	43	61	93	70	136	67
66	19	76	68	93	87	89	21	70	49	53	70	57	40	73	117	70	157	71
67	21	64	68	87	89	80	7	47	47	55	54	54	28	58	115	71	143	68
68	5	56	50	86	55	82	10	71	46	64	56	65	15	65	96	74	111	73

Table 8. Alaska Game Management Unit 13 Brown-Grizzly Bear Harvest by Year, Season, and Residency of Hunter.

Total Kill

YEAR	RESIDENT		NON-RESIDENT		TOTAL
	NO.	%	NO.	%	NO.
61	16	38	26	62	42
62	15	44	19	56	34
63	15	36	27	64	42
64	13	37	22	63	35
65	23	52	21	48	44
66	22	35	41	65	63
67	16	55	13	45	29
68	19	50	19	50	38

Average Male Hide Size (length plus width)

YEAR	RESIDENT		NON-RESIDENT		AVERAGE
	SIZE	NO.	SIZE	NO.	SIZE
61	13.0	9	13.0	9	13.0
62	13.8	9	13.9	12	13.8
63	12.5	8	12.7	13	12.6
64	11.9	4	13.2	10	12.8
65	12.8	15	12.9	9	12.9
66	13.6	11	13.0	22	13.2
67	12.4	10	13.6	6	12.8
68	12.7	10	13.0	8	12.9

Number and Precent of Males in Total Harvest

YEAR	RESIDENT		NON-RESIDENT		TOTAL	
	NO.	%	NO.	%	NO.	%
61	10	67	10	40	20	50
62	9	60	13	68	22	65
63	8	53	14	54	22	54
64	4	31	10	48	14	41
65	15	68	10	48	25	58
66	11	55	22	56	33	56
67	10	63	6	46	16	55
68	10	53	8	44	18	49

Table 9. Alaska Game Management Unit 20 Brown-Grizzly Bear Harvest by Year, Season, and Residency of Hunter.

Total Kill

YEAR	SPRING					FALL					TOTAL				
	RES.		N-R.		TOTAL	RES.		N-R.		TOTAL	RES.		N-R.		TOTAL
	NO.	%	NO.	%	NO.	NO.	%	NO.	%	NO.	NO.	%	NO.	%	NO.
61	6	100	0	0	6	7	64	4	36	11	13	76	4	24	17
62	4	100	0	0	4	17	77	5	23	22	21	81	5	19	26
63	10	100	0	0	10	27	79	7	21	34	37	84	7	16	44
64	5	100	0	0	5	26	63	15	37	41	31	67	15	33	46
65	16	94	1	6	17	5	33	10	67	15	21	66	11	34	32
66	11	92	1	8	12	24	53	21	47	45	35	61	22	39	57
67	4	100	0	0	4	9	82	2	18	11	13	87	2	13	15
68	3	60	2	40	5	15	83	3	17	18	18	78	5	22	23

Average Male Hide Size (length plus width in feet)

YEAR	SPRING					FALL					TOTAL				
	RES.		N-R.		AVER	RES.		N-R.		AVER	RES.		N-R.		AVER
	SIZE	NO.	SIZE	NO.	SIZE	SIZE	NO.	SIZE	NO.	SIZE	SIZE	NO.	SIZE	NO.	SIZE
61	13.7	4	0	0	13.7	13.8	5	11.3	4	12.6	13.7	9	11.3	4	13.0
62	13.9	1	0	0	13.9	12.8	10	11.9	4	12.5	12.9	11	11.9	4	12.6
63	12.0	4	0	0	12.0	12.2	18	13.7	2	12.4	12.2	22	13.7	2	12.4
64	13.4	5	0	0	13.4	13.0	12	12.9	11	13.0	13.1	17	12.9	11	13.0
65	13.8	6	13.9	1	13.8	13.6	2	13.7	9	13.7	13.7	8	13.7	10	13.7
66	12.6	6	15.7	1	13.0	12.9	12	14.0	8	13.3	12.8	18	14.2	9	13.2
67	14.9	2	0	0	14.9	12.1	2	12.9	1	12.3	13.5	4	12.9	1	13.3
68	14.7	1	14.1	2	14.3	12.8	11	14.5	3	13.2	13.0	12	14.3	5	13.4

Number and Percent of Males in Total Harvest

YEAR	SPRING						FALL						TOTAL					
	RES.		N-R.		TOTAL		RES.		N-R.		TOTAL		RES.		N-R.		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
61	20	80	35	83	55	82	11	55	19	66	30	61	31	69	54	76	85	73
62	33	77	44	85	77	81	5	33	27	60	32	53	38	66	71	73	109	70
63	19	73	39	87	58	83	6	32	36	55	42	49	25	56	75	68	100	65
64	15	83	36	84	51	84	15	54	37	64	52	60	30	65	73	72	108	70
65	25	69	53	85	78	80	18	51	40	56	58	55	43	61	93	70	136	67
66	19	76	68	93	87	89	21	70	49	53	70	57	40	73	117	70	157	71
67	21	64	68	87	89	80	7	47	47	55	54	54	28	58	115	71	143	68
68	5	56	50	86	55	82	10	71	46	64	56	65	15	65	96	74	111	73

In Game Management Unit 8, Kodiak and adjacent islands, the 1968 harvest was less than it was in 1967. Seasons were not changed; apparently reduced hunting success depressed the harvest. It appears that numbers of bears have been reduced in areas that have sustained heavy hunting pressure during the past 5 to 10 years. Hunters were required to obtain a Federal permit for the first time in 1968 to hunt on the Kodiak National Wildlife Refuge. The objective of this permit system was to distribute hunting pressure and relieve hunter congestion at favored hunting spots. There was no limit on the number of permits issued, and all persons who wanted to hunt were able to do so. Hunters and guides appeared to be satisfied with the system, and it appeared to alleviate the congestion problem to a large extent.

In Game Management Unit 9, the Alaska Peninsula, the 1968 harvest was 158 as compared to more than 200 for each of the 3 preceding years. The percent of males in the harvest was about the same as in preceding years, and the proportion of non-resident hunters, 87 percent, was greater than during any preceding year. Seasons were the same in 1968 as in 1967. It is believed that the pre-registered camp regulation and other restrictions on use of aircraft depressed the 1968 harvest.

In Game Management Unit 13, the Nelchina area, the 1968 kill was about the same as that of past years with the exception of the peak year of 1966. The percent of males in the harvest, the hide size, and the ratio of resident to non-resident hunters were about the same as they have been for the past several years. Observations by Department personnel made incidental to other activities and reports from residents of the area indicate that the bear population in Unit 13 might be increasing.

In Unit 16, the lower Susitna area, the 1968 harvest was somewhat lower than those of the past 3 years. There was not the increase in harvest which some thought would occur with more restrictions in Unit 9.

In Game Management Unit 20, 22 bears were taken in 1968. This is a substantial reduction from the peak year of 1966 and a slight increase over 1967. This appears to be a conservative harvest figure for this Unit.

In Game Management Unit 23, the Western Arctic, more bears were taken in 1968 than in previous years. Snow conditions permitted late spring hunting, and a few guides who do not normally hunt out of Kotzebue did so because of hunting restrictions in other areas.

A tooth, usually PM_1, was obtained from 67 percent of the bears taken in the spring and 48 percent of the bears taken in the fall. Two people examined cementum layering of tooth sections and assigned ages. On spring specimens readers usually agreed, and ages were assigned for nearly all teeth collected. Different people examined the fall teeth; 7 percent of the teeth were judged unreadable, and ages were not assigned. Age data are presented in Tables 10 and 11. The cementum age determination technique should be further evaluated by examining known-age specimens.

Table 10. Age Composition of Brown Bears Harvested in Alaska During the 1968 Spring Season Based on Tooth Cementum Layering.

Unit	Sex	No. of Bears by Age Class										Mean Age and Range	
		1	2	3	4	5	6	7	8	9-10	11+		
4	M			1	2	1		1		1	2	8.2	(3-24)
	F							1	1		1	9.7	(7-14)
5	M					1					2	10.6	(5.15)
	F											-	-
6	M		2		4	1			2	4	6	8.2	(2-14)
	F			1		2	1		1	1	4	9.0	(3-15)
8	M			7	6	5	5	5	4	2	5	6.6	(3-16)
	F	1	1	6	5	7	1	3	1	1	3	5.8	(1-22)
9	M		1	3	2	3	1	3	2	4	11	9.1	(2-23)
	F			2	3	1			1	1		5.1	(3-10)
11	M							1				7.0	(7)
	F											-	-
12	M											-	-
	F										1	13.0	(13)
16	M									1	3	13.5	(9-17)
	F			2		1						2.7	(3- 5)
17	M											-	-
	F				1							4.0	(4)
20	M										2	16.0	(16)
	F											-	-
22	M			1								3.0	(3)
	F							1				7.0	(7)
23	M				1	1	1		1	1	8	12.2	(4-21)
	F											-	-

Table 11. Age Composition of Brown Bears Harvested in Alaska During the 1968 Fall Season Based on Tooth Cementum Layering.

Unit	Sex	No. of Bears by Age Class										Mean Age and Range	
		1	2	3	4	5	6	7	8	9-10	11+		
4	M					1				1		7.0	(5- 9)
	F											-	-
5	M		1			1						3.5	(2- 5)
	F											-	-
6	M		1	4			1		1			4.0	(2- 8)
	F		1	2					2			4.8	(2- 8)
8	M					1						5.0	(5)
	F						1				1	8.5	(6-11)
9	M		2	8	4			1	1		2	5.2	(2-19)
	F	1		4	2		1	1	1	1		4.6	(1- 9)
10	M			1				1				5.0	(3- 7)
	F			1								3.0	(3)
11	M				1			1		1		6.7	(4- 9)
	F				1				3		1	8.6	(4-15)
12	M					1						5.0	(5)
	F											-	-
13	M	1	2	1			2		1	1	1	5.9	(1-15)
	F	1	4	1	1		2	1	3	2		5.1	(1- 9)
14	M			1	1					1		5.7	(3-10)
	F			1	1	2			1			5.0	(3- 8)
15	M		2									2.0	(2)
	F		1	1				1				4.0	(2- 7)
16	M		2	2	2	1			1		2	5.9	(2-15)
	F		1			1			1			5.0	(2- 8)
17	M				1				1	1		7.3	(4-10)
	F									1		10.0	(10)
19	M		1	1						1		4.7	(2- 9)
	F						4					6.0	(6)
20	M										3	14.7	(11-19)
	F											-	-
22	M							1				7.0	(7)
	F			1								3.0	(7)
23	M						1	2			2	9.4	(6-15)
	F						2		1	1		7.3	(6- 9)
25	M		1				1					4.0	(2- 6)
	F							1			1	10.5	(7-14)
26	M			2		2	1	1			1	5.7	(3-11)
	F										1	11.0	(11)

McNeil River Studies

Conditions were generally good for observing and marking bears at McNeil River. The salmon run was above average, and low water levels made fish more available to bears than they are most years. Disturbance of bears by photographers was limited to about 5 days of the study period.

Nine bears were immobilized while free-roaming, and one was captured in a steel trap. Immobilizing free-roaming bears was more satisfactory than trapping because traps malfunctioned, were somewhat of a hazard to other people in the area, and were non-selective so that bears already tagged were subject to being retrapped. Eighty-four trap nights of effort resulted in nine snapped or released and unclosed traps, and the one bear trapped.

The working dosage of 0.75 milligrams/pound body weight of Sernylan was satisfactory although larger dosages given when weights were underestimated immobilized bears faster and made them easier to find in dense vegetation. Reactions to drugs varied. One old female without cubs estimated to weigh 500 pounds required 1.9 milligrams/pound body weight to become immobile and was on her feet within 1 hour. A sow with a cub of the year received approximately 1 milligram/pound and took 9 hours to regain her feet. All bears which were immobilized were seen fully-recovered, except two tagged the last day of the study period. Tagging crews with experience were more successful in hitting bears with projectile syringes and finding drugged bears than inexperienced crews. Communication between crews with walkie talkies helped considerably in stalking bears and finding them after they were immobilized.

Four of the ten bears immobilized had been marked in previous years. Table 12 gives detailed information on bears captured in 1968. Marks applied in previous years allowed seven bears to be identified without being drugged. Nine of the ten bears immobilized in 1967 were recognized in 1968 (seven free-roaming and two recaptured). A high proportion of animals which had been collared in 1967 still had collars in 1968. Nylon rototags applied in 1967 were still present on several bears observed but not captured in 1968. One female tagged in 1967 and recaptured in 1968 retained a nylon rototag but had lost a metal tag. A polypropylene rope marker attached with a metal ear tag in 1965 was still present in 1968. Tattoo legibility was good to excellent on three of the four 1968 recaptures and indistinct on the fourth.

In addition to the ten bears which were immobilized and seven bears identified from previous years, a minimum of 13 bears 2 1/2 years old or older were recorded. Animals were differentiated on the basis of size, color, and, for those accompanied by young, the number and age of young. There were also 18 young (12 cubs and 6 yearlings). Thus the minimum total number of bears at McNeil in 1968 was 48.

Table 12. Brown Bears Captured at McNeil River, July 1968.

No.	Date	Sex	Est'd Age	Ear Tags L	Ear Tags R	Tattoo	Collar	Ear Marker	Alizarin Red S	Remarks
3-67	7/11	F	4	4N[1/]	62M	17	None	Blue-Rt.	Yes	
1-68	7/13	F	2	58N	58M	58	None	Black-Rt.	Yes	
2-68	7/15	F	3	59N	59M	59	None	Purple-Rt.	Yes	
3-68	7/15	F	3	57N	57M	57	None	Orange	Yes	
5-63	7/16	F	7	51N	1808M	13	Green	None	Yes	With 1 cub-of-year.
4-63	7/17	F	8	1807M	1806M	03	None	Pink Rope-Rt.	Yes	With 3 cubs-of-year.
12-63	7/18	F	12+	61N	61M	14	None	White-Rt.	No	
4-68	7/21	M	2	52N	52M	52	None	Orange-Rt.	Yes	
5-68	7/25	F	11+	53M	53N	53	Red	Blue-Rt.		With 3 yearlings.
6-68	7/25	F	10	54M	54N	54	Red	Green-L.		With 3 yearlin[illegible]

1/
N = Nylon
M = Metal

Table 13. Reproductive Status, Ages, and Weights of Female Brown Bears Captured or Observed More Than One Year at McNeil River.

No.	1963	1965	1966	1967	1968
5-63	Vulva not turgid Est'd. age - 2 Wt. - 275		Vulva turgid Est'd. age - 5		1 cub-of-year Cementum age - 9 Est'd. wt. - 300
4-63	Vulva slightly turgid Est'd. age - 3 Wt. - 280	2 cubs-of-year Est'd. age - 5		Vulva turgid Cementum age - 7 Est'd. wt. - 400	3 cubs-of-year Est'd. age - 8 Est'd. wt. - 375
10-63	Vulva turgid Est'd. age - 3 Wt. - 325			Vulva turgid Est'd. wt. - 350 Cementum age - 6-9	2 cubs-of-year
12-63	Vulva slightly turgid Est'd. age - 7 Wt. - 420		Vulva slightly turgid Est'd. age - 10		Vulva not turgid Est'd. age - 12+ Est'd. wt. - 500
4-65		2 cubs-of-year		2 cubs-of-year Cementum age - 6 Wt. - 302	
3-67				Vulva not turgid Est'd. age - 2 Est'd. wt. - 200	Vulva slightly turgid Est'd. age - 4 Est'd. wt. - 325
5-67				Vulva turgid Est'd. age - 6-8 Est'd. wt. - 400	3 cubs-of-year
8-67				Vulva turgid Cementum age - 13 Est'd. wt. - 500	No cubs

Table 13 summarizes some of the reproductive history of females recaptured and observed.

Not all bears fished at the falls during the tagging period. Some bears were seen frequently on the river, and others fed only sporadically on salmon. Bears were observed eating grasses and sedges, and numerous scats composed primarily of vegetable material were found. Human disturbance may have affected fishing patterns. Bears seemed to become increasingly more wary as the tagging program progressed and were seen less frequently as time passed. As in previous years, after about a week of tagging the only bears to visit the falls regularly were animals that no attempt was being made to tag because they had been tagged earlier in the season or in previous years.

The loss of a cub of the year by a tagged female was noted. The loss occurred when the sow attacked a large bear and while driving him away became separated from her three cubs. She found one immediately and another 3 days later. After a week she still had only two cubs with her. None of the other observed sows with cubs in the area increased their cub complements.

Use of the area by photographers during the tagging period was about 14 man-days, less than in previous years. Photographers included three teachers and two guided non-commercial photographers.

Tagging with Helicopter

A helicopter was flown approximately 10 hours in the Black Lake area on the Alaska Peninsula between August 9 and 13 to determine the feasibility of immobilizing bears from a helicopter for marking. Nine bears were marked (Table 14).

Most bears required several injections of Sernylan to become immobile. Animals were considerably fatter than those handled at McNeil River 2 to 4 weeks earlier, and it is believed that the 1 1/2-inch syringe needles which were used were not long enough to go through the fat layer and allow complete injection of the drug into muscle tissue. Longer syringe needles, perhaps 2 1/2 inches long, should be used in the future on mature animals which are tagged in August. Bears often tried to go into alder patches when they were approached with the helicopter and after they were hit with a syringe. It was generally possible to keep them in the open by "herding" with the helicopter until a syringe could be fired. After a bear had been hit with a syringe it was necessary to keep track of its movement very carefully and to sometimes herd it away from dense alder patches.

The only family groups encountered were females with cubs of the year. Three such females were immobilized, and in each instance the cubs became widely seperated from their mother, and in some cases from one another. The fact that it sometimes took as much as an hour of flying to immobilize a female contributed to the widespread seperation. It was not possible to determine if all family groups were reunited.

Table 14. Brown Bear Tagging Data, Black Lake Area, Alaska Peninsula, August 1968.

Location	Date	Sex	Age	Ear Tag and Tattoo Numbers	Collar	Ear Marker	Alizarin Red S	Remarks
Alec R. near junction with Boulevard Cr.	8/9	M	4[1]/	801	None	Orange-Rt.	Yes	Seen by guide 9/6 or 9/7/68 same location where tagged.
Junction of Broad Cr. and Alec R.	8/10	F	7	802	Red	None	Yes	With 2 cubs.
Broad Cr.	8/10	F	10	803	Red	None	Yes	Died. Sernylan overdose. Extremely fat.
Alec R.	8/10	F	6	804	Red	None	Yes	
West Fk., Chignik R.	8/10	F	2	805	Red (Temporary)	None	Yes	Killed by hunter 9/24/68 on Chignik L.
Alec R.	8/10	F	4	806	None	Green-Rt.	Yes	Killed by hunter 9/15/68 on Alec R.
Chiaktuak Cr.	8/11	M	2	808	None	Blue-Rt.	Yes	
Broad Cr.	8/11	F	10	809	Red	None	Yes	With 2 cubs.
Between Boulevard and Fan Crks.	8/12	M	3	810	None	White-Rt.	Yes	Seen 8/17/68 on Boulevard Cr. by fish survey crew.
Fan Cr.	8/12	F	14	811	Red	None	Yes	With 3 cubs.
Boulevard Cr.	8/13	M	3	812	None	Blue-Rt.	Yes	

1/ Estimated. Other ages from cementum examination.

Denning Studies

Denning work was conducted on the Alaska Peninsula from Aniakchak Crater to Bear Lake between May 1 and 11. The greatest concentration of recent and old den sites was found between Ash and Milk Creeks on the south slope of Black Mountain. Twelve dens were examined from the air. Four were rechecks of dens examined a year previously, four were located by direct aerial search, and four were located with the help of information from bear guides. Of 29.1 hours flown, 14.3 were ferry time and 14.8 were to look for and observe dens.

Dens located for the first time were between 650 and 3300 feet above sea level. The highest was inside Aniakchak Crater and was not examined from the ground as there were no landing sites nearby. The other dens located for the first time were examined from the ground. Descriptions follow:

Den 1 - 5/5/68

Site: North Fork of Bear River opposite southeast end of Bear Lake. 1100 foot elevation. 30 degree slope facing southeast. 7 inch snow depth. Vegetative cover of alders.

Description: Mound of dirt 8 feet wide by 12 feet long in front of den; dirt contained rocks up to 6 inches in diameter. Entrance 2.0 feet wide and 2.5 feet high. 5.4 feet from entrance to back of den. Den proper cone-shaped, 4.8 feet in diameter at base and 3.3 feet high. The only objects in den were rocks up to 6 inches in diameter.

Bear Activity: Sow and two new cubs seen near den by guide on 4/30/68. Bears were present but left site when den was examined 5/5/68.

Den 2 - 5/8/68

Site: Plenty Bear Creek, Meshik River Drainage. 650 foot elevation. 40 degree slope facing east. 12 inch snow depth. Vegetative cover of alders.

Description: Mound of dirt 25 feet long and 6 feet wide in front of den. Arch shaped entrance 3.7 feet wide and 2.2 feet high. Den in shape of a half circle as viewed from above. 11.9 feet long, 4.3 feet at greatest width, and 3.9 feet at greatest height. No objects in den.

Bear Activity: Sow and two new cubs reported at den on 5/5/68 by guide. Sow and one cub were at den and moved away when den was examined 5/8/68; bears were observed for 10 minutes and there was definitely only one cub; no explanation for two cubs on 5/5/68 and only one cub in 5/8/68. Three large holes in snow within 100 feet of den where bears had been lying.

Den 3 - 5/8/68

Site: Between West Fork Creek and Rapid Creek, Chignik River Drainage. 1100 foot elevation. 40 degree slope facing east. A few inches of snow. Dense alders. Within 50 feet of Den 4 examined same date.

Description: Mound of dirt 20 feet long and 8 feet wide in front of den. Entrance 2.9 feet wide and 3.6 feet high. Den proper 9.2 feet long, 5.0 feet wide, and 3.8 feet high. Water and mud on floor of den and water dripping from ceiling.

Bear Activity: Sow and three new cubs reported at den by guide on 4/28/68. No bears present when examined 5/8/68.

Den 4 - 5/8/68

Site: Between West Fork Creek and Rapid Creek, Chignik River Drainage. 1100 foot elevation. 40 degree slope facing east. 6 to 10 inches of snow. Dense alders. Within 50 feet of Den 3 examined same date.

Description: Dirt pile in front of den partly covered with snow; exposed portion 15 feet long and 5 feet wide. Entrance partly covered by snow and height not measured; entrance 3.0 feet wide. Den 6.7 feet long, 4.9 feet wide, and 4.6 feet high. No foreign objects in den.

Bear Activity: The only sign of recent activity was a track in front of den, perhaps made by a bear from nearby Den 3. Possible this den (No. 4) was from the year before.

Den 5 - 5/9/68

Site: Between Ash Creek and Milk Creek, Black Lake Drainage. 1250 foot elevation. 40 degree slope facing east. No snow. Alders and grass.

Description: Mound of dirt 15 feet long and 7 feet wide in front of den. Entrance 2.6 feet wide and 4.7 feet high. Tunnel 9.2 feet long from entrance to den proper. Den proper cone-shaped 5.0 feet wide at base and 4.3 feet high with floor 1.0 foot below level of tunnel. Quite a bit of water dripping from ceiling.

Bear Activity: Sow and one new cub seen at den approximately 5/1/68 by bear guide. Sow and cub lying in snow approximately 500 feet from den when examined on 5/9/68. Several patches of alders within 200 feet of den had been bitten and torn up.

Den 6 - 5/9/68

Site: Northwest slope of Aniakchak Crater. 900 foot elevation. 50 degree slope facing west-southwest. No snow. Vegetative cover of short grass.

Description: Mound of dirt 8 feet long and 8 feet wide in front of den. Entrance 3.1 feet wide and 3.9 feet high. Den 9.6 feet long, 4.2 feet wide at widest portion, and 3.3 feet high. Ice and porcupine droppings in bottom of den.

Bear Activity: No evidence of recent activity. Den may have been from previous year.

Table 15. Aerial Survey Brown Bear Composition Data, Alaska Peninsula, August 1968.

Females with young	76 (24%)	
Young	168 (53%)	
Cubs		96 (30%)
Small		18 (6%)
Medium		39 (12%)
Large		15 (5%)
Single Bears	76 (24%)	
Small		26 (8%)
Medium		37 (12%)
Large		10 (3%)
Unidentified		3 (1%)
Total	320 (100%)	

Table 16. Brown Bear Aerial Survey Data, Meshik-Aniakchak Rivers to False Pass, Alaska Peninsula.

	1958		1959		1966		1967		1968	
	No.	%	No.	%	No.	%	No.	%	No.	%
Females w/young	55	15	25	18	62	23	106	25	76	24
Cubs	65	18	34	25	96	35	151	35	114	36
Yearlings	52	14	17	12	37	14	64	15	54	17
Cubs and yearlings	117	32	51	37	133	49	215	50	168	53
Single Bears	189	52	63	45	79	29	106	25	76	24
Total bears	361		139		274		427		320	
Hours flown	21.2		6.7		10.2		33.4		19	
Bears per hour	17.1		20.9		26.9		12.8		16.8	

Table 17. Brown Bear Aerial Survey Data, Alaska Peninsula Trend Count Areas. 1/

Area	Year	Dates	No. of Bears	Hours Flown	Bears Per Hour	% Single Bears
Ugashik Lakes	1965	9/12-13	65	3.6	18.1	29
	1966	8-23	55	2.8	19.6	27
	1967	8/10-11	58	2.4	24.2	31
Meshik Drainage	1965	9/13	0	0.5	0	-
	1966	8/11	0	2.2	0	-
	1967	8/10	10	2.0	5.0	20
Black-Chignik Lakes	1962	7/31	118	2.5	47.2	22
	1965	8/6	123	2.5	49.2	16
	1966	8/9	108	2.5	43.2	31
	1967 2/	8/10	82	2.7	30.4	20
	1968	8/13	67	3.2	20.9	24
Sandy Lake	1965	8/10	42	0.9	46.7	24
	1966	8/10	37	0.7	52.9	19
	1967 3/	8/11	19	0.4	47.5	11
Canoe Bay	1966	8/21	19	0.3	63.3	32
	1967	8/11	37	1.5	24.7	24
	1968	8/18	38	1.7	22.4	34
Moffett Bay	1966	8/21	60	1.6	37.5	32
	1967	8/10	55	2.5	22.0	35
	1968	8/18	65	1.7	38.2	25

1/ Figures represent highest counts obtained on any one flight.

2/ Oil exploration helicopter working in area prior to count.

3/ Helicopter working in area prior to and during count. It is believed that bears were more wary and that some had moved out of area because of this.

Table 18. Aerial Survey Brown Bear Composition Data, Alaska Peninsula Trend Count Areas. 1/

Study Area and Year	PERCENT OF POPULATION					Sample Size
	F W/Young	Cubs	Yearlings	Cubs and Yearlings	Single Bears	
Ugashik Lakes						
1965	22	22	28	49	29	65
1966	22	24	27	51	27	55
1967	21	29	19	48	31	58
Black-Chignik Lakes						
1962	26	30	22	52	23	1718
1965	28	32	25	57	15	236
1966	22	34	13	47	31	108
1967	27	45	10	55	17	157
1968	23	43	14	57	19	129
Sandy Lake						
1965	26	31	19	50	24	42
1966	22	51	8	59	19	37
1967	25	39	21	61	14	28
Moffett Bay						
1966	23	33	12	45	32	60
1967	22	31	13	44	35	55
1968	25	30	21	51	24	128
Canoe Bay						
1966	21	16	32	47	32	19
1967	24	27	24	51	24	37
1968	22	32	14	46	32	63

1/ Figures represent total counts in each area.

Den 7 - 5/10/68

Site: Between Ash Creek and Milk Creek, Black Lake Drainage. 850 foot elevation. 30 degree slope facing south. No snow. Vegetative cover of alders and grass.

Description: Dirt mound 15 feet long and 10 feet wide in front of den. Den dug under large alder bush. Den 9.2 feet long, 6.3 feet at greatest width, and 4.2 feet at greatest height. Broken willows, alders, and porcupine droppings in den.

Bear Activity: Tracks of large single bear in front of den. Could not determine if den had been used this year. Believed to have been used by a sow and three new cubs the year before.

Kodiak Bear-Cattle Relationships

Reports by ranchers and tracks seen in the spring by Department personnel indicated a relatively high number of bears on Kodiak cattle leases. The Department did less monitoring of bear activity on the leases than it has for several years.

Department personnel examined 16 dead cattle. Eleven were decomposed to the extent that cause of death could not be determined. Five, ranging in age from 1 to 4 years, were determined to have been killed by bears. Ranchers reported 29 cattle killed by bears.

Five bears, all adults, were killed by the Department. One was tracked from a steer which it had killed. The others were close to cattle and judged to be potential predators. Months when bears were taken and their sexes were: May, one male; July, one male; October, one female; November, one sex unknown; and December, one male.

Salmon streams in Saltery Cove and Kalsin Bay were walked in September to estimate the numbers of bears on them. Results are: Rough Creek--two adults, one subadult; Lake Creek--two adults; and Sacramento River, West Fork, and American River--one adult each. The salmon run was past its peak when streams were surveyed, and more bears would probably have been counted if surveys had been made in late August.

Alaska Peninsula Trend Counts

On the Alaska Peninsula, aerial counts were made on the brown bear study areas south of the Meshik drainage between August 3 and 18 when bears were concentrated on salmon streams. Bad weather and over-commitments by State contract pilots prevented making counts north of the Meshik and making replicate counts as planned.

During 19 hours of surveying, 320 bears were seen. The average litter size for cubs of the year was 2.23 and for cubs older than 1 year was 2.16. Other data are presented in Tables 15 through 18 along with data from past years for comparison.

Bear-Logging Relationships

Four beach survey routes on Admiralty and Chichagof Islands were each flown two different evenings between May 23 and May 29. Considering the highest number of bears seen on each area for any one flight, 63 bears were counted over the four routes. Numbers of bears seen were comparable to numbers seen in 1967 except on the southwestern Admiralty Island route where more bears were seen than have been seen since 1960. The number and composition of young seen in 1968 was different than in 1967. Of the nine young seen in 1968, eight were cubs of the year, whereas in 1967, only four out of thirteen young were cubs of the year. Data for 1968 and comparable data for previous years are presented in Tables 19, 20, and 21.

Several factors affect the number of bears seen in different years and on different routes the same year. For data to be comparable between years, routes should be flown at the same phenological time of year, at the same time of day, with similar aircraft, and with the same number of observers. On the 1968 counts, the ability of the pilots to keep the survey areas, particularly the heads of bays, in view of the observers was a factor in obtaining complete counts. The difference in Tenakee Inlet counts of 25 and 16 bears on the two flights was probably partly due to different abilities of the two pilots who flew the surveys. Bad weather reduced visibility on some flights and may have influenced degree of bear use of survey route areas. Hunting activity reduced numbers of bears seen in some areas, particularly the southwestern Admiralty route. Bears seen in bays where there were or had recently been hunters were more wary than bears in unhunted bays and would run for cover when the airplane approached.

Replicate aerial counts of bears were made on August 1, 2, and 3 on streams with early salmon runs which drain into bays on the southern shore of Tenakee Inlet on Chichagof Island, and on streams on northwest and northeast Admiralty Island. An average of 24 bears was seen per flight. The highest count for each steam gave a total of 40 bears for the survey route. The 40 included 8 cubs of the year and 2 older young. In addition to counting bears, notes were made on fish abundance, human disturbance, degree of logging, presence or absence of fringe cover, and quality of survey coverage. Data are presented in Tables 22, 23, and 24. Surveys planned for streams with medium and late salmon runs were not made because of personnel limitations and weather.

Various logged areas were examined from the ground to obtain an indication of bear use from tracks, trails, and scats. Patterns of revegetation in logged areas were also noted.

Many scats were found along roads in logged areas indicating that bears probably utilize roads quite extensively as travel routes through these areas. Little sign was seen off roads in logged areas, even in areas with dense stands of berries. Vegetation was dense enough, however, that some sign could have been present and not seen. Trails along borders of tidal flats in the spring and along streams during periods of salmon escapement in late summer showed heavy use.

Table 19. Numbers of Brown Bears Seen During Spring Survey Flights, Southeastern Alaska, 1960-68.

Year	Southeastern Admiralty Island		Southwestern Admiralty Island		Seymour Canal		Tenakee Inlet	
	Ave. No./ Flight	Highest No. Any One Flight	Ave. No./ Flight	Highest No. Any One Flight	Ave. No./ Flight	Highest No. Any One Flight	Ave. No./ Flight	Highest No. Any One Flight
1960 1/	21	32	18	21				
1961	19	22	8	10				
1962	12	15	10	12				
1963	16	21	11	15				
1964 2/	-	-	-	-				
1965 2/	-	-	-	-				
1966	21	28	12	13				
1967	18	19	9	9	1	2	23	23
1968	12.5	15	19	20	3	3	20.5	25
Ave.	17.1	21.7	12.4	14.3	2	2.5	21.7	24

1/ 1960-1963 data from Brown Bear Studies, Interim Report, 1958-1963, North Tongass National Forest, Juneau, Alaska.

2 2/ No flights made in 1964 and 1965.

Table 20. Number of Brown Bear Young Seen During Spring Survey Flights, Southeastern Alaska, 1966-1968.

Year	Southeastern Admiralty Island			Southwestern Admiralty Island			Seymour Canal			Tenakee Inlet		
	Cubs of Year	Other Young	Total	Cubs of Year	Other Young	Total	Cubs of Year	Other Young	Total	Cubs of Year	Other Young	Total
1966	-	-	8	-	-	5						
1967	2	3	5	2	1	3	-	-	-	-	5	5
1968	1	-	1	5	-	5	-	-	-	2	1	3
Ave.	1.5	1.3	4.7	3.5	.5	4.3	-	-	-	1	3	4

Table 21. Percentages of Brown Bear Cubs of Year and Older Young Seen on Spring Survey Flights, 1966-1968. 1/

Year	Area	% Cubs of Year	% Older Young	Sample Size
1966	SE Admiralty	7.8	10.9	64
	SW Admiralty	2.8	22.2	36
		6.0	15.0	100
1967	SE Admiralty	8.3	8.3	36
	SW Admiralty	11.0	5.6	18
	NE Admiralty	0.0	0.0	2
	Chichagof Is.	0.0	21.7	46
		4.9	13.7	102
1968	SE Admiralty	4.0	0.0	25
	SW Admiralty	13.2	2.6	38
	NE Admiralty	0.0	0.0	6
	Chichagof Is.	4.9	4.9	41
		7.3	2.7	110

1/ Figures are based on total number of bears observed for all flights.

Table 22. Numbers of Brown Bears Counted From the Air on Chichagof Island and Admiralty Islands Streams, 1968.

Stream	Aug. 1	Aug. 2	Aug. 3	Highest Count
Tenakee Head Creek	-	2	-	2
West Head Creek	2	2	1	2
Goose Bay Creek	5	2	6	6
Long Bay Creek	1	3	6	6
Seal Bay Creek	4	7	-	7
Saltery Bay Creek	-	1	2	2
Crab Bay Creek	-	5	1	5
Kadashan Bay Creek	-	-	1	1
Wheeler Creek	-	-	1	1
Greens Creek	1	1	-	1
Pack Creek	7	4	7	7
Total	20	27	25	40

Table 23. Composition of Brown Bears Counted on Chichagof Island and Admiralty Island Stream Surveys, 1968.

	Sows/Cubs of Year			Sows/Other Cubs			Single Bears			
	F/1	F/2	F/3	F/1	F/2	F/3	S	M	L	Total
Aug. 1	-	-	-	2	-	-	3	9	4	20
Aug. 2	3	-	1	-	-	-	4	13	-	27
Aug. 3	-	1	-	-	-	-	9	10	3	25
Average										24

Table 24. Results of Southeastern Alaska Brown Bear Stream Surveys Flown August 1-3, 1968, and Logging and Salmon Escapement Data.

Stream	Results of Survey	Logging Dates and Acreage 1/	Salmon Escapement 2/	
			Dates of Peaks Range	5-Yr. Ave. Numbers
Wheeler Cr. (Admir. I.)	Unlogged. Good to poor coverage of stream due to failing light and poor flying conditions. No disturbance by people. Salmon present 3 mi. upstream and beyond. About 500 fish in lower 1/4 mi. of stream. One bear seen. This count probably low.		8/1-10	3,780
Greens Cr. Admir. I.)	Unlogged. Fair to poor coverage due to nature of terrain and poor light. No disturbance by people. Apparently few fish present, but difficult to determine. 2 bears seen. Probably few bears present.		8/1-20	5,000
Pack Cr. (Admir. I.)	Unlogged. Bear refuge. Good coverage although poor visibility made counting difficult. Salmon present but unable to count. Minimum of 7 bears. Probably has highest concentration of bears of any of the streams surveyed.		8/1-9	19,660
Thayer Cr. (Admir. I)	3/		8/25-9/10	2,500
Ward Cr. (Admir. I.)	3/		8/15-9/15	Undetermined but probably low.

1/ Information from U. S. Forest Service Files, Juneau, Alaska.
2/ Information from Commercial Fish Division, ADF&G, Juneau, Alaska.
3/ Not surveyed as planned in September because of bad weather and personnel limitations.

Table 24. Results of Southeastern Alaska Brown Bear Stream Surveys Flown August 1-3, 1968, and Logging and Salmon Escapement Data (Continued).

Stream	Results of Survey	Logging Dates and Acreage 1/	Salmon Escapement 2/	
			Dates of Peaks Range	5-Yr. Ave. Numbers
Hood Bay North Arm North Head (Admir. I.)	3/		9/1-15	6,400
Hood Bay North Arm South Head (Admir. I.)	3/		9/1-15	10,500
Hood Bay South Arm South Head (Admir. I.)	3/	1952-258 A.	9/1-15	5,400
Chaik Bay Head (Admir. I.)	3/		8/30-9/15	14,400
Whitewater Bay North Head (Admir. I.)	3/	1966-685 A. 1967-238 A.	8/8-15	4,500
Whitewater Bay South Cr. (Admir. I.)	3/	1968-718 A.	8/8-15	4,500

1/ Information from U. S. Forest Service Files, Juneau, Alaska.
2/ Information from Commercial Fish Division, ADF&G, Juneau, Alaska.
3/ Not surveyed as planned in September because of bad weather and personnel limitations.

Table 24. Results of Southeastern Alaska Brown Bear Stream Surveys Flown August 1-3, 1968, and Logging and Salmon Escapement Data (Continued).

Stream	Results of Survey	Logging Dates and Acreage 1/	Salmon Escapement	
			Dates of Peaks Range	5-Yr. Ave Numbers
Whitewater Bay Wilson Cove Head (Admir. I.)	3/		8/15-30	18,600
Chapin Bay (Admir. I.)	3/	1967-238 A.	8/10-9/15?	Few?
Eliza Harbor East Cr. (Admir. I.)	3/	1956-205 A.	8/10-9/15?	Few?
Eliza Harbor North Cr. (Admir. I.)	3/	Logging not completed. 275 A. cut 195 A. to be cut	8/10-9/15?	Few?
Eliza Harbor Northwest Cr. (Admir. I.)		1965-481 A.	8/10-9/15?	Few?
Rodman Bay (Baranof I.)		1948-75 A.? 1959 to present 4,000+ A.	8/20-9/15	33,000
Saook Bay (Baranof I.)		1963-314 A. 1963-292 A.	8/15-9/15	28,000

1/ Information from U. S. Forest Service Files, Juneau, Alaska.
2 Information from Commercial Fish Division, ADF&G, Juneau, Alaska.
3/ Not surveyed as planned in September because of bad weather and personnel limitations.

Table 24. Results of Southeastern Alaska Brown Bear Stream Surveys Flown August 1-3, 1968, and Logging and Salmon Escapement Data (Continued).

Stream	Results of Survey	Logging Dates and acreage[1/]	Salmon Escapement[2/]	
			Dates of Peaks Range	5-Yr. Ave. Numbers
Tenakee Head (Chichagof 1.)	Unlogged. No disturbance by people. Excellent coverage. About 5,000-7,000 salmon, most in lower 1-½ mi. of stream. Minimum of 2 bears seen; probably few bears on this stream. Perhaps surveyed a bit early.		7/25-8/5	18,650
West Head Cr. (Chichagof 1.)	Unlogged. No disturbancy by people. Good coverage of stream. Approximately 2,000-3,000 fish in lower mile of stream. Minimum of 4 bears.		7/25-8/5	8,200
Goose Bay Cr. (Chichagof 1.)	Unlogged. No disturbance by people. Good coverage of stream. Approximately 10,000-14,000 salmon, most in lower 2 mi. of stream. Minimum of 8 bears.		7/25-8/5	28,600
Long Bay Cr. (Chichagof 1.)	Unlogged. No disturbance by people. Good coverage of stream. Approximately 10,000-14,000 salmon, most in lower 2 mi. of stream. Minimum of 8 bears.		7/25-8/25	16,900
Seal Bay Cr. (Chichagof 1.)	Presently being logged. No human activity at time of counts. Good coverage of stream. Estimated 10,000-15,000 salmon. Minimum of 9 bears. Fringe cover present along stream in logged area.	Presently being logged. ? A.	7/25-8/25	27,200

1/ Information from U. S. Forest Service files, Juneau, Alaska.
2/ Information from Commercial Fish Division, ADF&G, Juneau, Alaska.
3/ Not surveyed as planned in September because of bad weather and personnel limitations.

le 24. Results of Southeastern Alaska Brown Bear Stream Surveys Flown August 1-3, 1968, and Logging and Salmon Escapement Data (Continued).

Stream	Results of Survey	Logging Dates and acreage[1/]	Salmon Escapement[2/]	
			Dates of Peaks Range	5-Yr. Ave.
Saltery Bay Cr. (Chichagof 1.)	Logged. Fishing (?) boat at mouth on 1st flight. Coverage of stream only fair; may have caused low counts. Approximately 2,000 fish in lower 2 mi. Minimum of 2 bears. Good fringe cover as logging has been on sides of bay	1957-33 A. 1963-66 A. 1964-? 1966-59 A.	7/25-8/5	18,000
Crab Bay Cr. (Chichagof 1.)	Logged. No disturbance by people. Good coverage of stream. Estimated 3,000 salmon in intertidal zone and in lower portion of stream. Minimum of 5 bears. Fringe cover present on stream.	1959-131 A. 1969- 76 A.	7/25-8/5	5,960
Kadashan Bay 3 streams) (Chichagof 1.)	Outer portion of bay logged. Poor coverage of streams due to their winding, brushy nature. No disturbance by people. The west creek had no fish, middle creek had some fish, and east creek had approximately 5,000 salmon in lower mile. Only 1 bear seen. The count was probably low due to poor aerial coverage and also because salmon run had not yet peaked.	1961-133 A.	7/25-8/5	67,000

1/ Information from U. S. Forest Service files, Juneau, Alaska.
2/ Information from Commercial Fish Division, ADF&G, Juneau, Alaska.
3/ Not surveyed as planned in September because of bad weather and personnel limitations.

Comments on areas examined follow:

Chapin Bay. Logging was completed on 220 acres in 1962. Cut is along the Bay on a 30 percent slope and not along the stream. Regeneration of spruce is patchy. Growth of shrubs is only fair. Primary shrub species include red elder, devil's club, alder, salmonberry, and thimbleberry. Cornus and Streptopus are abundant. Ferns, grasses, and sedges are co-dominant with shrubs due probably to good drainage of the area. Berry production on shrubs is good. There is much bare ground with some erosion evident. Some slash piles have not revegetated. The few bear scats that were found were composed primarily of berries.

Woewodski Harbor. Logging was completed in 1952 and was along the stream. Area has flat aspect with divided stream channels. Many mature trees were left standing. The area has grown back heavily to alders up to 30 to 40 feet high. Shrub growth is sparce underneath. Fern and moss growth is good. Spruce regeneration is patchy and thin under alder cover or thick and robust in openings, with trees up to 20 feet high. There is little berry production with the exception of red elder. Two scats found along stream were composed primarily of berry material.

Eliza Harbor. This area has had three different logging shows. A 205-acre cut was completed in 1956 in an area with a slight slope and several stream channels. There is a heavy growth of shrubs, and regrowth of spruce and hemlock is well distributed. Edges of water courses have alders up to 30 feet high. Shrubs have good berry production. Access through the area is along trails in dense alders bordering stream channels. Nearly all use appears to be by deer. A 1965 cut of 481 acres is located on the valley bottom and adjacent slopes. Appearance of vegetation on slopes is similar to Chapin Bay but with better growth. Alder growth is dense and widespread on valley bottom where stream channel is divided. A third logging show which is still active was not examined from the ground.

Rodman Bay. This area and adjacent bays have been logged more intensively than most areas in Southeastern Alaska. Somewhat more than 4,000 acres have been cut with most cuts completed at various times since 1959; one 75-acre cut was completed in 1948. Vegetation recovery appears similar to that in Chapin Bay and recent Eliza Harbor cuts. Shrubs are present in a relatively homogeneous mixture. Spruce and hemlock regeneration is present but not apparent. Berry production is excellent on most species. Bear scats were numerous along a road, and tracks were obvious along a stream. Of 89 scats examined, 30 were of mixed berry and sedge-grass or other vegetation, 21 were primarily berry remains, 21 were vegetation other than berries and sedge-grass, and 17 were entirely sedges and grasses. No scats with fish remains were found, although pink and chum salmon were in the lower 2 miles of stream. The fish may have been in the stream for so short a time at the time of survey that bears had not yet started feeding on them.

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